

INDEX TO
04853 - MASONRY-SUPPORTED GRANITE WALLS

<u>Paragraph</u>	<u>Title</u>	<u>Page</u>
 <u>PART 1 - PRODUCTS</u>		
None in this Section		
 <u>PART 2 - EXECUTION</u>		
2.01	Subgrade Preparation and Earthwork	04853-2
2.02	Concrete Footing and Reinforcement	04853-3
2.03	Concrete Block Walls and Columns	04853-4
2.04	Granite	04853-5
2.05	Statues and Engraving	04853-6

SECTION 04853

04853 - MASONRY-SUPPORTED GRANITE WALLS

2.01 SUBGRADE PREPARATION AND EARTHWORK:

- A. Subgrade preparation and earthwork for the construction of the monument will be included in the lump sum price for "Subgrade Preparation and Earthwork". The contractor shall furnish all equipment and materials necessary to conduct adequate subgrade preparation and earthwork in accordance with the project drawings and specifications.
- B. The initial requirement for satisfactory subgrade preparation entails stripping of the upper 24 inches of surface soils within the monument area, as well as removal of deleterious materials such as vegetation, organic/unsuitable soils, and/or materials excessively softened or loosened during excavation/stripping activities. These materials shall be removed from within the entire monument area prior to beginning concrete formwork.
- C. In conjunction with stripping operations, subgrade soils within the monument area shall be inspected for zones of loose, soft, or otherwise unsuitable material. Any such zones should be over-excavated and replaced with structural fill. Over-excavation and replacement can be terminated at a maximum depth of 36 inches below subgrade.
- D. Where replacement is required to fill areas of deeper removal, or where granular backfill is required to achieve design grades, structural fill may be placed and compacted in maximum 8-inch thick loose lifts to at least 98 percent of the standard Proctor maximum dry density (ASTM D698 or AASHTO T90). Suitable fill material should be sandy in nature with less than 10 percent fines (passing the No. 200 sieve) and less than 3 percent organic material by weight.
- E. The acceptability of subgrade soils and over excavation and replacement work shall be verified by the project geotechnical engineer prior to beginning concrete formwork for the monument foundation.

2.02 CONCRETE FOOTINGS AND REINFORCEMENT:

- A. Work associated with construction of reinforced concrete footings in accordance with project drawings and specifications for the construction of the monument will be included in the lump sum price for "Concrete Footings, Reinforcement, Concrete Block Walls, and Columns."
- B. The contractor shall furnish all equipment and materials necessary to construct a reinforced concrete footing in accordance with the project drawings and specifications.
- C. The concrete footing shall consist of Portland cement concrete (ASTM C150 Normal Type 1).
- D. Concrete shall be mixed in accordance with ASTM C94 and have a minimum strength of 4,500 pounds per square inch (psi) at 28 days.
- E. Immediately after placement, the concrete shall be protected from premature drying, excessive hot or cold temperatures, and mechanical disturbance.
- F. Reinforcement steel shall consist of 60 ksi, yield grade deformed billet steel bars, uncoated finish. The minimum amount of concrete embedment required for reinforcement of concrete exposed to earth will be 3 inches.
- G. All number 4 bars will be lapped a minimum of 20 inches and overlaps shall be fastened with a minimum of three steel ties located at the center and each end of each lap.
- H. Reinforcement sizing and layout are depicted in the construction drawings.
- I. A minimum of three concrete strength test results shall be provided to demonstrate compliance with project specifications.
- J. A concrete strength test result shall be the average of at least two compressive strength tests conducted on standard-cured strength specimens made from the same concrete sample and tested at the same age.
- K. The average of three concrete strength test results shall equal or exceed the specified 28-day strength.
- L. No single strength test shall fall below the specified 28-day strength by more than 500 psi.
- M. Concrete strength test specimens shall be prepared and cured in accordance with ASTM C 31, "Standard Practice for Making and Curing Concrete Test Specimens in the Field."

- N. Concrete strength test specimens shall be tested in accordance with ASTM C 39, "Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens."

2.03 CONCRETE BLOCK WALLS AND COLUMNS:

- A. Work associated with construction of concrete block walls and columns in accordance with project drawings and specifications for the construction of the monument will be included in the lump sum price for "Concrete Footings, Reinforcement, Concrete Block Walls, and Columns." The contractor shall furnish all equipment and materials necessary to construct concrete block walls and columns in accordance with the project drawings and specifications.
- B. Concrete masonry units shall be free of cracks or other defects that would interfere with the proper placement of the unit or would significantly impair the strength or permanence of the construction. Minor cracks incidental to the usual method of manufacture or minor chipping resulting from customary methods of handling in shipment and delivery are not grounds for rejection. Five percent of a shipment containing chips not larger than 1 inch in any dimension, or cracks not wider than 0.02 in. and not longer than 25% of the normal height of the unit is permitted.
- C. Concrete masonry units shall be normal weight units with a density of 125 pounds per cubic foot or more. Concrete masonry units shall be standard 8-inch concrete masonry units.
- D. Vertical reinforcing steel shall consist of 60 ksi, yield grade deformed billet steel bars, uncoated finish.
- E. Vertical reinforcing steel shall be centered in the concrete block cell in which it is located.
- F. Concrete block units are to be staggered.
- G. Concrete block units to have vertical continuity of cells unobstructed. All cells containing vertical reinforcing steel shall be solid grouted. Column centers containing reinforcing steel shall be solid grouted.
- H. Mortar mix shall be 1 part cement to ½ part lime to 3 parts damp loose sand.
- I. Grout mix shall be 1 part cement to 3 parts sand to which may be added not more than 1/10 part lime. Sufficient water shall be added to produce consistency for pouring

without segregation of the constituents.

- J. Horizontal reinforcement for concrete block walls shall consist of Dur-O-Tab DA 3500, or equivalent, multiwythe reinforcement placed on alternating wythes, beginning on top of the base course and each course thereafter, with the exception of the top of the block wall.
- K. The tops of the concrete block walls and columns shall be finished as required to achieve adequate support for overlying granite panels. This may include cutting of concrete blocks to achieve the design height of the finished monument, and to ensure that the block walls and columns are flush with the tops of the granite wall panels.

2.04 GRANITE:

- A. Work associated with granite work in accordance with project drawings and specifications for the construction of the monument will be included in the lump sum price for "Engraving, Granite (Walls and Top) and Statues Installation." The contractor shall furnish all equipment and materials necessary to construct granite portions of the monument in accordance with the project drawings and specifications.
- B. The material is to consist of Georgia grey granite.
- C. Granite wall panels and top panels shall have a "steel" finish, with the exception of the outside edge of the top panels which shall have a "balanced rock pitch finish."
- D. Joints in granite walls and granite top panels shall be grouted and sealed, and shall match granite in color. Joints shall be no wider than ¼ inch.
- E. Brass U-bolts (3/4-inch diameter) shall be used to connect tops of adjacent wall panels. The U-bolts shall be installed 6 inches into the granite panels and set using stone epoxy. Top edges of U-bolts shall be flush with the top edge of the granite wall panels so as to not interfere with flush placement of the top panels over the granite walls, and interior block support structures.
- F. One stainless steel pin (3/4-inch diameter) shall be centered at the base of each wall panel to anchor granite panels to the concrete foundation. The anchor pins shall be set a minimum of four inches into each granite panel, and a minimum of four inches into the concrete footing.

- G. Latex or rubber strips shall be placed beneath the base of granite wall panels to join the interface between the granite and the underlying concrete.
- H. Following placement of the granite top panels, appropriately sized holes shall be drilled in the granite top panels as directed by the project sculptor. It is currently anticipated that 24 holes shall be drilled to a depth of 6 inches into the granite top panels for anchoring of monument statues. Drilling of anchor holes shall be conducted in the field under the direction of the project sculptor. The locations of the statue anchor points as shown on the drawings are subject to change, and are shown for illustrative purposes only.

2.05 STATUES AND ENGRAVING:

- A. Work associated with installation of monument statues and engraving of granite walls in accordance with project specifications for the construction of the monument will be included in the lump sum price for "Engraving, Granite (Walls and Top) and Statues Installation." The contractor shall furnish all equipment and materials necessary to install statues to the top of the finished monument pedestal and to engrave granite wall panels according to the instructions of the project sculptor. The statues will be provided by the City of Savannah for completion of work.
- B. A total of six statues will need to be installed on the top of the monument. Each statue will weigh approximately 400 pounds and will need to be handled with care during installation.
- C. Installation of the statues and engraving of granite walls shall be conducted in the field under the direction of the project sculptor.

END OF SECTION